CHARGE NUMBER: 1005

PROJECT TITLE: Improved Semiworks Operations

PROJECT LEADER: J. F. Sherwood

PERIOD COVERED: July, 1980

DATE OF REPORT: August 7, 1980

I. Primary Processing

A. WS Application

A series of tests was completed in the MC to confirm the previous bench scale tests which indicated that it is feasible to apply WS to tobacco in the MC, using the proposed covered and exhausted conveyor system, if a reduced tobacco rate (4,000 lb/hr) and a concentrated WS solution (24 weight % in ethanol) were used. In these experiments, B&H Menthol after-cut containing the normal amount of ethanol as well as 1.5 and 2.5 times the normal amount was applied to B&H filler in the MC at tobacco rates of 4,000 lb/hr. This would result in theoretical ethanol levels on the filler ranging from 1.2 to 3.0%. The theoretical ethanol level for filler to which WS and a special Merit after-cut are applied is 2.5%. It was assumed in these tests that the existing covered and exhausted conveyors on the MC menthol line would approximate the ethanol removal of the proposed conveyor system for WS application.

The results of measurements made with an MSA combustible gas indicator on tobacco samples collected after the final weigh belt showed ethanol levels in the air over the tobacco to average 2, 2, and 4% of the LEL (lower explosive limit), respectively, for the samples with the normal amount, 1.5 times the normal amount, and 2.5 times the normal amount of ethanol. Another run made at an 8,000 lb/hr tobacco rate using 2.5 times the normal amount of ethanol resulted in an average ethanol level in the air over the tobacco samples of 10% of the LEL. Therefore, it appears very likely that WS test market runs at 8,000 lb/hr will be feasible in the MC.

B. Filler Degradation

As part of a program to determine if individual components, particularly RL, degrade more than others in a cigarette blend, an experiment was run in which an improved urea analysis procedure, developed by R. E. Davis, B. M. Handy, and A. B. Smiley, was used to trace RL in the individual sieve fractions of Marlboro filler. In this experiment, blend sieve fractions before and after a Mark 9 maker were analyzed for urea. Analysis of variance of the data showed significant differences in the urea levels in the individual sieve fractions with the mediums fractions showing the highest urea levels. However, there were no significant differences in the urea levels before and after the maker indicating that the RL did not degrade any more than the remaining portion of the blend.

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II. Cigarette Making and Packing

High Speed Seam Sealing

POL results for Marlboro smokers on Marlboro (N-3121) cigarettes made with Polymer Industries 428-156-1 PVA liquid adhesive showed no significant differences from control cigarettes made with starch paste. However, significant differences were detected between the test and control by non-Marlboro full flavor smokers. Plans are to test another lot of the Polymer adhesive.

III. Blend Component Studies

Expanded Thin Bright and Burley

A test is in progress to evaluate the expansion of thin bright and thin burley tobacco. In this test, run in the MC, two expansion runs each were made using bodied and thin bright and burley tobacco. CV results showed the increase in filling power due to expansion to be 38.3 and 43.2 cc/10g for the bodied and thin bright, respectively. The CV increases for the bodied and thin burley were 43.9 and 46.0 cc/10g, respectively.

Cigarettes have been made from these samples and firmness as well as analytical testing is in progress. Subjective testing by the Flavor Development group should begin next week on Marlboro type cigarettes having the following types of expanded tobacco at a 10% level: DBC bright, thin bright, thin burley, and 50% thin bright/50% thin burley.

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